What is claimed is:

1. A hand pattern switch device, which has image pickup means for picking up an image of a hand that is within a predetermined image pickup zone and in which a hand pattern is recognized from and a hand motion is detected from the picked-up image to obtain operation information for a controlled object, comprising:

controlled object setting means for selecting one of controlled objects in accordance with the recognized hand pattern and/or the detected hand motion; and

detection mode changing means for changing a mode of detection of the operation information based on the hand motion in dependence on which controlled object is selected.

2. The hand pattern switch device according to claim 1, wherein said controlled object setting means cyclically selects one of the controlled objects each time a predetermined hand motion pattern is detected.

3. The hand pattern switch device according to claim 1, wherein said detecting mode changing means includes:

a moved distance detecting mode where a moved distance of the hand in the image pickup zone is detected and used as the operation information;

a stop time detecting mode where a stop time of the hand at a stop position, to which the hand has been moved by a predetermined distance or more in the image pickup zone, is detected and used as the operation information; and

detection mode setting means for setting at least one of the moved distance detecting mode and the stop time detecting mode.

4. The hand pattern switch device according to claim 3, wherein the moved distance detecting mode is a mode in which the moved distance of the hand is detected in multi-stage

fashion using a predetermined moved distance as a unit of detection.

5. A vehicular hand pattern switch device, which has image pickup means for picking up an image of a hand that is within a predetermined image pickup zone and in which a hand pattern is recognized from and a hand motion is detected from the picked-up image to obtain operation information for a controlled object, comprising:

the image pickup zone being at a location which is located laterally to a steering wheel of a vehicle and to which a driver who steers the steering wheel can extend a driver's arm without changing a driving posture.

6. The vehicular hand pattern switch device according to claim 5, wherein the image pickup zone is at least 50 mm apart from an outer periphery of the steering wheel, the image pickup zone being a rectangle in shape and having a size of about 600 mm in a fingertip direction and about 350 mm in a width direction of the driver's hand which is extended.

7. The vehicular hand pattern switch device according to claim 5, wherein the detection of the hand motion in the image pickup zone includes detecting a 10 mm to 70 mm displacement of a centroid position of the hand, determined from the picked-up image, as a controlled object selection and/or an amount of operation of a controlled object concerned.

8. A vehicular hand pattern switch device, which has image pickup means for picking up an image of a hand that is within a predetermined image pickup zone and in which a hand pattern is recognized from and a hand motion is detected from the picked-up image to obtain operation information for a controlled object, comprising:

the image pickup means being disposed at a location at which the image pickup means can pick up an image of a zone to which a driver who steers a steering wheel of a vehicle can extend

a driver's arm without changing a driving posture.

9. The vehicular hand pattern switch device according to claim 8, wherein said image pickup means is disposed at a ceiling of the vehicle.

10. A hand pattern switch device, which has image pickup means for picking up an image of a hand that is within a predetermined image pickup zone and in which a hand pattern is recognized from and a hand motion is detected from the picked-up image to obtain operation information for a controlled object, comprising:

controlled object selecting means for cyclically selecting one of controlled objects when a predetermined hand motion pattern is repeated; and

operation amount changing means for changing an amount of operation of the selected controlled object in accordance with the hand motion.

11. The hand pattern switch device according to claim 10, wherein said hand pattern switch device includes operation start recognizing means for recognizing that an operation of said device is started when it is determined that the recognized hand pattern corresponds to a predetermined first hand pattern, and

said controlled object selecting means selects a controlled object in accordance with a motion of the hand whose recognized hand pattern corresponds to a predetermined second hand pattern, after recognizing that the operation of said device is started.

12. The hand pattern switch device according to claim 11, wherein said operation start recognizing means includes confirming means for confirming that the hand of the first hand pattern does not grasp or touch a particular thing and then determining that the operation of said hand pattern switch device is started.

13. The hand pattern switch device according to claim 11, wherein the first hand pattern corresponds to one that is formed when the hand grasps a thing, and the second hand pattern corresponds to one that is formed when the hand indicates a thing with its finger.

14. The hand pattern switch device according to claim 11, wherein said device includes start promoting means for promoting start of the operation amount changing means when the recognized hand pattern corresponds to a predetermined third hand pattern and a detected position of the hand in the image pickup zone is not displaced for a predetermined time after the controlled object is selected.